



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
08/820,057	03/18/1997	CHRISTOPHER TURNER	109026-0038	2455
21323	7590	10/30/2003	EXAMINER	
TESTA, HURWITZ & THIBEAULT, LLP HIGH STREET TOWER 125 HIGH STREET BOSTON, MA 02110			LEWIS, DAVID LEE	
			ART UNIT	PAPER NUMBER
			2673	43

DATE MAILED: 10/30/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

08/820,057

Applicant(s)

TURNER ET AL.

Examiner

David L Lewis

Art Unit

2673

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE ____ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) 1-28 and 30-34 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☐ Claim(s) 1-28 and 30-34 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 40.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

In view of the Applicant's persuasive arguments in the Appeal Brief filed on 7/25/2003, PROSECUTION IS HEREBY REOPENED. New prior art, Inoue et al. (JP 64-86116) and Chiang et al. (IDS article C7), has come to the Examiners attention and therefore prosecution has been re-opened. New Art Chiang provides the claimed structure as found in claim 1, and lacks only the printing technique which is provided by Kazan, Pearlman, and Inoue. Given the device of Chiang or Kazan can be implemented by known printing techniques, it would have been obvious to the skilled artisan to provide the device as claimed.

To avoid abandonment of the application, appellant must exercise one of the following two options:

- (a) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37 CFR 1.113 (if this Office action is final); or,
- (b) request reinstatement of the appeal.

If reinstatement of the appeal is requested, such request must be

accompanied by a supplemental appeal brief, but no new amendments, affidavits (37

CFR 1.130, 1.131 or 1.132) or other evidence are permitted. See 37 CFR 1.193(b)(2).

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. **Claims 1-28 and 30-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kazan (5220316) in view of Pearlman et al. (5216530), Inoue et al. (JP 64-86116) and Chiang et al. (IDS article C7).**
3. **As in claim 1, Kazan teaches of an a first printed electrode, figure 4 item 17, an electrophoretic display media, column 3 lines 1-15, column 5 lines 30-35, column 6 lines 50-60, figure 4 items 12 and 13, a printed non-linear devices, figure 4 items 14 and 16, column 5 lines 50-55, and a second printed electrode, figure 4 item 15, wherein the top and bottom electrodes intersect to form a matrix, figure 4 items X and Y, wherein an applied voltage to the electrodes will electrically couple the nonlinear device to a first and second electrode via a bus bar electrode connection, column 4 lines 6-42. Kazan lacks the teaching of printing a display media over the printed nonlinear device to form the display. Pearlman provides the teaching that the construction of a an encapsulated display media of the type suggested by Kazan can be formed by printing a fist electrode, printing an encapsulated display media, and then printing a second electrode, column 10 lines 7-30, wherein Pearlman suggests an electrophoretic or liquid crystal type display. Inoue et al. teaches of an encapsulated electrophoretic display being arranged on an electrode and substrate by a printing technique, page 4, paragraph 1, wherein the electrophoretic display is printing by a roller or spray printing technique. Chiang et al. teaches of an electrophoretic display being arranged by conventional**

semiconductor technique, wherein he teaches of the electrophoretic display and nonlinear device being sandwiched between two opposing electrodes on a substrate, as claimed, **figure 1**. **Chiang et al. lacks** said printing technique as claimed but provides for the claimed structure of the electrophoretic display device. As supported by Kazan, Pearlman, and Inoue, printing of display elements for the electrophoretic display including printing of the electrodes, nonlinear elements, and electrophoretic display medium are known in the art. **Therefore given the known structure** for having the electrophoretic display and nonlinear devices disposed between to electrodes on a substrate, as taught by Chiang et al., **It would have been obvious to the skilled artisan** at the time of the invention to provide for a display arrangement based on said known structure by the known printing techniques as taught by Kazan, Pearlman, and Inoue, because printing is a useful means for providing an electrophoretic display, as suggested by Kazan and Chiang, as found in claim 1.

4. As in **claim 2**, Kazan teaches wherein the non-emissive display is an electrophoretic display, column 6 lines 44-60. As in **claim 3**, Kazan teaches wherein non-emissive display is a rotating ball display, wherein column 6 lines 9-10 and 44-61, wherein said microencapsulated displays are known to alternatively be of the rotating ball type. As in **claim 4**, Kazan teaches wherein the non-emissive display is an electrostatic display, column 6 lines 44-60, wherein electrostatic broadly reads on any microencapsulated electrophoretic display. As in **claim 5**, Kazan teaches of a thin,

Art Unit: 2673

flexible substrate, column 2 lines 55-59, wherein thin plastic is known to be flexible.

As in **claim 6** Kazan teaches wherein the first set being orthogonal to the electrodes of the second set, figure 4 items X and Y. As in **claim 7** Kazan teaches wherein the electrophoretic display material and the nonlinear elements are arranged in planar form and sandwiched between the first and second sets of electrodes, column 5 lines 43-68, as argued above in claim 1. As in **claim 8** Kazan teaches wherein the electrophoretic display comprises a plurality of discrete, microencapsulated electrophoretic display elements, column 3 lines 1-10, column 6 lines 10-11. As in **claim 10** Kazan teaches wherein the first and second sets of electrodes are printable, at least one of the sets of electrodes being visually transparent, column 5 lines 43-68, Inoue et al., page 4 paragraph 1. As in **claim 11** Kazan teaches wherein the nonlinear elements are printable, column 5 lines 43-68. As in **claim 13** Kazan teaches wherein the nonlinear elements are a print deposited ink exhibiting a nonlinear electrical characteristic, column 5 lines 43-68, wherein silk screening as well known deposits ink, said nonlinear characteristic being inherent to the silk screen deposited nonlinear element. As in **claim 24** Kazan teaches wherein the electrodes comprise a print deposited conductive ink, column 5 lines 43-68, wherein said silk screening deposition method of the electrodes, inherently includes conductive ink by virtue of electrode function. As in **claim 28** Kazan teaches wherein each set of electrodes is arranged in lanes with spaces therebetween, and further comprising an insulating material located in the spaces, figure 4 item 15, 17, and 30A, column 5

Art Unit: 2673

lines 43-68. As in **claims 33 and 34** Kazan teaches of silicon films and polymer conductors, column 4 lines 54-68, column 5 lines 1-25.

5. As in **claims 30-32**, Kazan ET AL., teaches of the invention as applied to claim 1 above. However Kazan does not detail a variety of well known nonlinear elements, but it would be obvious to the skilled artisan at the time of the invention that nonlinear elements include diodes and varistors in general, because they are know nonlinear elements used in display systems.
6. As in **claims 14-23 and 25** Kazan ET AL., teaches of the invention as applied to claim 1 above. Further Kazan teaches of the nonlinear resistor elements are composed of semiconducting or conducting powder particles bonded together with an insulating or semiconducting binder, column 3 lines 5-11, which are fabricated by silk screening or other thick film deposition methods, column 5 lines 43-68. However Kazan does not detail the variety of well known ink constitutes. It would have been obvious to the skilled artisan at the time of the invention to utilize an ink comprising well known binder and particle constituents for the purposes of silk screen fabricating the nonlinear elements to be used in the silk screening deposition method because particles bonded together with a binder are suggested by Kazan for use in a Liquid Crystal Display. It would further be obvious to utilize various particles and binder constituents well known in the art, as found in claims 14-23 and 25.

Art Unit: 2673

7. As in **claim 9**, Pearlman et al. teaches of containers (capsules) of varying sizes, column 4 lines 3-10, column 16 lines 44-50, as well known in the art. As in **claim 12**, Inoue et al. teaches wherein the electrophoretic display is printable, page 4 paragraph 1. As in **claim 26**, Kazan teaches wherein the ink is transparent, which is inherent to said electrodes being transparent. As in **claim 27**, Pearlman et al. teaches of indium tin oxide, column 9 lines 35-41.

Response to Arguments

8. Applicant's Appeal Brief arguments with respect to claims 1-28 and 30-34 filed on **2/14/2002** have been considered but are moot in view of the New Grounds for rejection based on the newly considered prior art, provided by the Applicant on 7/18/2003. New Art Chiang provides the claimed structure as found in claim 1, and lacks only the printing technique which is provided by Kazan, Pearlman, and Inoue. Given the device of Chiang or Kazan can be implemented by known printing techniques of Kazan, Pearlman, Inoue, the Applicant's invention would have been obvious to the skilled artisan.

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **David L. Lewis** whose telephone number is **(703)**

Art Unit: 2673

306-3026. The examiner can normally be reached on MT and THF from 8 to 5. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala, can be reached on (703) 305-4938. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 305-3900.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks
Washington, D.C. 20231

or faxed to:

(703) 872-9314 (for Technology Center 2600 only)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.



BIPIN SHALWALA
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600